Lewis River Case Study Final Report

A decision-support tool for assessing watershed-scale habitat recovery strategies for ESA-listed salmonids

Appendix C: Selecting Actions within Strategies

May 2007

Introduction

Details of how actions were selected for each of the 6 modeled watershed management strategies are described in this appendix. Appendix D describes how each type of action was modeled in the DSS.

Culvert removal

We removed the most cost efficient ($/km newly accessible habitat) barrier or culvert first. Barriers blocking the longest distance were often selected.

Riparian planting / Riparian restoration

Riparian planting only occurred on areas where riparian function was poor or fair and costs were not prohibitive. These included reaches for which more than 35% of the riparian area (within 20 m of the channel) was less than 5% slope, and more than 50% of the riparian area was not in bare ground, shrubs, or short grass. We started at the most upstream reach that met these criteria and worked our way downstream. A few expert panels specifically requested an alternative prioritization system. In these cases we also used agriculture ratio, fish distribution, sediment, and hydrologic input information.

Riparian protection

Protection of riparian areas only occurred where the riparian area (within 60 m of the channel) was not yet protected by county, state, or federal programs. We selected areas for protection starting at the most upstream reach that met all criteria. For the non-expert panel strategies, we protected good riparian habitat bordering streams that were suitable for spawning, as indicated from the remotely sensed habitat capacity and suitability model (Appendix I). Expert panels often provided additional instructions such as good riparian, all impaired riparian, in flood plain, lowest sediment input, etc.

Road decommissioning / Road improvements

We selected roads with the largest lateral road sediment input to the stream. If the amount of sediment was the same for 2 or more reaches, we selected the most upstream road. Some expert panels also requested that other information such as an agency list of prioritized roads be used in selecting roads for decommissioning or improvement.

Instream habitat improvement

All restore for spawning actions were dictated by an expert panel or by the EDT model (Appendix L). We selected the most upstream reach first where given a choice. Experts often instructed us to use additional information such as riparian condition or stream width. When the expert panel did not specifically define the selection area or selection process, we restored 50 m of habitat for every 10 km of stream.

Restore floodplain

All floodplain restoration actions were dictated by an expert panel or by the EDT model (Appendix L). We selected the most upstream reach first where given a choice. Experts often instructed us to use additional information such as reaches that currently have side channels and that currently have no dikes.

Dike removal

Only one expert panel under the expert panel strategy requested dike removals. We referred to the LCFRB map (WRIA 27 LEWIS-KALAMA WATERSHED Mass Wasting and Stream - Floodplain Connections Map A-4, LCFRB 2004a) to locate existing dikes and removed from upstream to downstream within budget constraints.